



ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of
Invention

APPARATUS FOR ELECTRO CHEMICAL DEPOSITION OF
COPPER METALLIZATION WITH THE CAPABILITY OF IN-
SITU THERMAL ANNEALING

Application Number: 10/686486



Confirmation Number: 8014

First Named Applicant: ROBIN CHEUNG

Attorney Docket Number: AMAT3421C2

Art Unit: 1753

Search string: (3649509 or 3727620 or 3770598 or 4027686
or 4092176 or 4110176 or 4113492 or 4315059
or 4326940 or 4336114 or 4376685 or 4405416
or 4428815 or 4435266 or 4489740 or 4510176
or 4518678 or 4519846 or 4568431 or 4693805
or 4732785 or 4789445 or 4816098 or 4816638
or 5039381 or 5055425 or 5069760 or 5092975
or 5100516 or 5155336 or 5162260 or 5222310
or 5224504 or 5230743 or 20010030101 or
20020000271 or 20020022363 or 20020029961
or 20020037641 or 20020074233).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
1	1	3649509	1972-03-14	MORAWETZ, ET AL.			
1	2	3727620	1973-04-17	ORR			
	3	3770598	1973-11-06	CREUTZ			
	4	4027686	1977-06-07	SHORTES, ET AL.			
	5	4092176	1978-05-30	KOZAI, ET AL.			
	6	4110176	1978-08-29	CREUTZ, ET AL. (DECEASED)			
	7	4113492	1978-09-12	SATO, ET AL.			
	8	4315059	1982-02-09	RAISTRICK, ET AL.			
	9	4326940	1982-04-27	ECKLES, ET AL.			
1	10	4336114	1982-06-22	MAYER, ET AL.			



11	4376685	1983-03-15	WATSON
12	4405416	1983-09-20	RAISTRICK, ET AL.
13	4428815	1984-01-31	POWELL, ET AL.
14	4435266	1984-03-06	JOHNSTON
15	4489740	1984-12-25	RATTAN, ET AL.
16	4510176	1985-04-09	CUTHBERT, ET AL.
17	4518678	1985-05-21	ALLEN
18	4519846	1985-05-28	AIGO
19	4568431	1986-02-04	POLAN, ET AL.
20	4693805	1987-09-15	QUAZI
21	4732785	1988-09-15	QUAZI
22	4789445	1988-12-06	GOFFMAN, ET AL.
23	4816098	1989-03-28	DAVIS, ET AL.
24	4816638	1989-03-28	UKAI, ET AL.
25	5039381	1991-08-13	MULLARKEY
26	5055425	1991-10-08	LEIBOVITZ, ET AL.
27	5069760	1991-12-03	TSUKAMOTO, ET AL.
28	5092975	1992-03-03	YAMAMURA, ET AL.
29	5100516	1992-03-30	NISHIMURA, ET AL.
30	5155336	1992-10-13	GRONET, ET AL.
31	5162260	1992-11-10	LEIBOVITZ, ET AL.
32	5222310	1993-06-29	THOMPSON, ET AL.
33	5224504	1993-07-06	THOMPSON, ET AL.
34	5230743	1993-07-27	THOMPSON, ET AL.

US Published Applications

Note: Applicant is not required to submit a paper copy of cited US Published Applications

init	Cite.No.	Pub. No.	Date	Applicant	Kind	Class	Subclass
11	1	20010030101	2001-10-18	BERNER, ET AL.			
1	2	20020000271	2002-01-03	RITZDORF, ET AL.			
1	3	20020022363	2002-02-21	RITZDORF, ET AL.			
1	4	20020029961	2002-03-14	DORDI, ET AL.			
1	5	20020037641	2002-03-28	RITZDORF, ET AL.			
11	6	20020074233	2002-06-20	RITZDORF, ET AL.			



Signature

Examiner Name	Date
<i>Harry S. Will, Jr.</i>	<i>1/5/04</i>



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Search string: (2026605 or 4265943 or 4786337 or 5156731
or 5384284 or 5510216 or 5846598 or 5885749
or 5891513 or 5907790 or 5913147 or 5994675
or 6017777 or 6030208 or 6037257 or 6171922
or 6174388 or 6207937 or 6211495 or 6222164
or 6242349 or 6258223 or 6290833 or 6296906
or 6483081 or 6544338 or 5431700 or 6072163
or 6307184 or 6423947 or 6529686 or 6639189
or 20020004301 or 20020102837 or
20030045095).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
HW	1	2026605	1936-01-07	ANTISELL			
/	2	4265943	1981-05-05	GOLDSTEIN, ET AL.			
/	3	4786337	1988-11-22	MARTIN			
/	4	5156731	1992-10-20	OGASAWARA, ET AL.			
/	5	5384284	1995-01-24	DOAN, ET AL.			
/	6	5510216	1996-04-23	CALABRESE, ET AL.			
/	7	5846598	1998-12-08	SEMKOW, ET AL.			
/	8	5885749	1999-03-23	HUGGINS, ET AL.			
/	9	5891513	1999-04-06	DUBIN, ET AL.			
/	10	5907790	1999-05-25	KELLAM			
HW	11	5913147	1999-06-15	DUBIN, ET AL.			



12	5994675	1999-11-30	BETHUNE, ET AL.
13	6017777	2000-01-25	KIM, ET AL.
14	6030208	2000-02-29	WILLIAMS, ET AL.
15	6037257	2000-03-14	CHIANG, ET AL.
16	6171922	2001-01-09	MAGHSOUDNIA
17	6174388	2001-01-16	SIKKA, ET AL.
18	6207937	2001-03-27	STODDARD, ET AL.
19	6211495	2001-04-03	STODDARD, ET AL.
20	6222164	2001-04-24	STODDARD, ET AL.
21	6242349	2001-06-05	NOGAMI, ET AL.
22	6258223	2001-07-10	CHEUNG, ET AL.
23	6290833	2001-09-18	CHEN
24	6296906	2001-10-02	STIMMELL, ET AL.
25	6483081	2002-11-19	BATCHELDER
26	6544338	2003-04-08	BATCHELDER, ET AL.
27	5431700	1995-07-11	SLOAN
28	6072163	2000-06-06	ARMSTRONG, ET AL.
29	6307184	2001-10-23	WOMACK, ET AL.
30	6423947	2002-07-23	WOMACK, ET AL.
31	6529686	2003-03-04	RAMANAN, ET AL.
32	6639189	2003-10-28	RAMANAN, ET AL.

US Published Applications

Note: Applicant is not required to submit a paper copy of cited US Published Applications

init	Cite.No.	Pub. No.	Date	Applicant	Kind	Class	Subclass
UW	1	20020004301	2002-01-10	CHEN, ET AL.			
UW	2	20020102837	2002-08-01	RITZDORF, ET AL.			
UW	3	20030045095	2003-03-06	RITZDORF, ET AL.			

Signature

Examiner Name	Date
Harry D. Willitt	1/5/06



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Search string: (5252807 or 5256274 or 5259407 or 5290361
or 5292393 or 5316974 or 5324684 or 5328589
or 5349978 or 5368711 or 5377425 or 5377708
or 5415890 or 5429733 or 5442235 or 5447615
or 5449447 or 5516412 or 5527739 or 5608943
or 5625170 or 5651865 or 5677244 or 5705223
or 5716207 or 5718813 or 5723028 or 5820692
or 5884009 or 6015749 or 6071388 or 6093291
or 6136163 or 6187152 or 6203582 or 6207005
or 6258220 or 6267853 or 6276072 or 6290865
or 6290933 or 6294059 or 6309520 or
6508920).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
UW	1	5252807	1993-10-12	CHIZINSKY			
1	2	5256274	1993-10-26	PORIS			
	3	5259407	1993-11-09	TUCHIDA, ET AL.			
	4	5290361	1994-03-01	HAYASHIDA, ET AL.			
	5	5292393	1994-03-08	MAYDAN, ET AL.			
	6	5316974	1994-05-31	CRANK			
	7	5324684	1994-06-28	KERMANI, ET AL.			
	8	5328589	1994-07-12	MARTIN			
HL	9	5349978	1994-09-27	SAGO, ET AL.			



10	5368711	1994-11-29	PORIS
11	5377425	1995-01-03	KAWAKAMI, ET AL.
12	5377708	1995-01-03	BERGMAN, ET AL.
13	5415890	1995-05-16	KLOIDER, ET AL.
14	5429733	1995-07-04	ISHIDA
15	5442235	1995-08-15	PARRILLO, ET AL.
16	5447615	1995-09-05	ISHIDA
17	5449447	1995-09-12	BRANDERS
18	5516412	1996-05-14	ANDRICACOS, ET AL.
19	5527739	1996-06-18	PARRILLO, ET AL.
20	5608943	1997-03-11	KONISHI, ET AL.
21	5625170	1997-04-29	PORIS
22	5651865	1997-07-29	SELLERS
23	5677244	1997-10-14	VENKATRAMAN
24	5705223	1998-01-06	BUNKOFSKE
25	5716207	1998-02-10	MICHINA, ET AL.
26	5718813	1998-02-17	DRUMMOND, ET AL.
27	5723028	1998-03-03	PORIS
28	5820692	1998-10-13	BAECKER, ET AL.
29	5884009	1999-03-16	OKASE
30	6015749	2000-01-18	LIU, ET AL.
31	6071388	2000-06-06	UZOH
32	6093291	2000-07-25	IZUMI, ET AL.
33	6136163	2000-10-24	CHEUNG, ET AL.
34	6187152	2001-02-13	TING, ET AL.
35	6203582	2001-03-20	BERNER, ET AL.
36	6207005	2001-03-27	HENLEY, ET AL.
37	6258220	2001-07-10	DORDI, ET AL.
38	6267853	2001-07-31	DORDI, ET AL.
39	6276072	2001-08-21	MORAD, ET AL.
40	6290865	2001-09-18	LLOYD, ET AL.
41	6290933	2001-09-18	DURGA, ET AL.
42	6294059	2001-09-25	HONGO, ET AL.
43	6309520	2001-10-30	WOODRUFF, ET AL.
44	6508920	2003-01-21	RITZDORF, ET AL.

Signature



Examiner Name	Date
Harry D. Williams, III	1/5/06

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PTO/SB/08a (08-03)

Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449A/PTO

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1

of 2

Application Number

10/686,486

Filing Date

OCT. 15, 2003

First Named Inventor

CHEUNG, ET AL.

Group Art Unit

1753

Examiner Name

UNKNOWN

Attorney Docket Number

AMAT/3421.C2/CMP/ECP/RKK

Submission Date

APRIL 23, 2004

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A1	US-			
	A2	US-			
	A3	US-			
	A4	US-			
	A5	US-			
	A6	US-			
	A7	US-			
	A8	US-			
	A9	US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ³
		Country Code ⁴ -Number ⁴ -Kind Code ⁵ (if known)				
HW	B1	EP 0 421 735 A2	04/10/1991	KABUSHIKI KAISHA TOSHIBA		
	B2	EP 0 881 673 A2	12/02/1998	INTERNATIONAL BUSINESS MACHINES CORPORATION		
	B3	EP 1 037 263 A2	09/20/2000	APPLIED MATERIALS, INC.		
	B4	EP 1 085 557 A2	03/21/2001	APPLIED MATERIALS, INC.		
	B5	JP 4-131395	05/06/1992			
	B6	JP 4-280993	10/06/1992			
	B7	JP 54-148112 W/ENG. ABSTRACT	11/20/1979	NAKAGAWA KK		
	B8	JP 58-182823 W/ENG. ABSTRACT	10/25/1983	NIPPON DENKI KK		
	B9	JP 6-17291 W/ENG. ABSTRACT	01/25/1994	NEC CORP		
	B10	JP 63-118093	05/23/1988	TANAKA ELECTRON INC		
	B11	WO 97/12079	04/03/1997	INTEL CORPORATION		
HW	B12	WO 99/40615	08/12/1999	SEMITOOL, INC.		
	B13					

Examiner

Date Considered

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SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2

of 2

Application Number	10/686,486
Filing Date	OCT. 15, 2003
First Named Inventor	CHEUNG, ET AL.
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Examiner Name	UNKNOWN
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NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
HLW		COLOMBO, Wafer Back Surface Film Removal, Central R&D, SGS-Thomson Microelectronics, Agrate, Italy, Spin Tech Technology, 6 pages.	
		Semitool Products/Sales from www.Semitool.com Metallization and Interconnect, October 27, 1998, 4 pages.	
		Verteq from www.verteq.com Welcome to Verteq Online Products Overview, 5 pages.	
		Technologies Corporation from www.laurell.com , 6 pages.	
		SINGER, Nonuniformity of Copper Electroplating Studied, Wafer Processing, Semiconductor International. June 1998, page 70.	
		Tantalum, Copper and Damascene: The Future of Interconnects, Semiconductor International, June 1998, pages 91-98.	
		PITNEY, Ney Contact Manual, Electrical Contacts for Low Energy Uses, October 8, 1974, 19 pages.	
HLW		HOLM, Electric Contacts Theory and Application, Fourth Completely Rewritten Edition, Springer-Verlag, New York Inc., August 21, 1967, 27 pages.	

Examiner

Date Considered

1/5/06

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